

WASHINGTON UNIVERSITY
PLANNING COUNCIL FOR BIOLOGY

MEMBERS

Barry Commoner, Professor of Plant Physiology (Chairman)

Herman N. Eisen, Professor of Medicine

Thomas S. Hall, Professor of Zoology

Alfred M. Holtzer, Associate Professor of Chemistry

Florence Moog, Professor of Zoology

Robert E. Woodson, Jr., Professor of Botany

ex officio:

Henry N. Andrews, Jr., Chairman, Department of Botany

Howard Gest, Chairman, Committee on Molecular Biology

Viktor Hamburger, Chairman, Department of Zoology

Frits W. Went, Director, Missouri Botanical Garden

May 1962

WASHINGTON UNIVERSITY
PLANNING COUNCIL FOR BIOLOGY

Summary of General Aims

The Washington University Administration has asked this Council to study the rapidly changing state of the biological sciences in order to ascertain what demands these changes place on the University's academic program. The ultimate aim of this study is to recommend a plan for the future development of the University's program in biology and related sciences that will take full advantage of the new opportunities created by recent developments and that may help to resolve the issues resulting from the impact of these developments on the present disciplines of biology.

Recent years have witnessed accelerating advances in our knowledge of the physical and chemical processes that occur in living cells, and in systems derived from them. These advances have been very wide in scope and relate closely to the most fundamental properties of living organisms. Consequently, the resultant conclusions have an inescapable impact on all areas of biology.

This situation creates new problems and unprecedented opportunities. The problems result from a series of unresolved questions which arise from the reactions of

the new observations on the older questions already under purely biological study: Is it possible to reduce the operation of processes unique to living organisms to the properties of single substances, such as the nucleic acids? What is the most effective way to study the properties of life: by investigating the apparent determinative roles of molecular processes, by way of studies based exclusively on actual living systems, or by a combination of the two? The future course of education and research in biology depends on the answers given to these questions.

The pace of recent advances has been so great that there has at yet been little opportunity for the academic community to sense their far-reaching effects on teaching and research in biology.

Approaches differ quite sharply. One school of thought holds that the new "molecular" fields of biology will largely supplant classical biology as the cutting edge of progress in the study of living things. Another view is that biology proper must be concerned only with the properties of actually living things, and avoid confusion -- and probably interaction -- with the molecular level. A third view is that the molecular type of analysis must be guided by and correlated with knowledge about actually living systems, that the levels of organization must be explicitly considered in planning and interpreting

experiments, and that the unique attributes of actually living systems must represent the final court of appeal. One more view is that advances can be made simultaneously at all levels of organization, from the molecular to the ecological, without preoccupation with their interaction.

Clearly the possible approaches suggest widely diverging courses of action with respect to the future development of the life sciences. Other influences on the future course of biology are suggested by the changing social demands on contemporary science.

The Council has decided to undertake a series of discussions of the alternative views of these problems, in order to work out its own analysis of the changing status of biology, and from this analysis, a plan for the future development of the biological sciences at Washington University. To this end we are inviting some of the leading thinkers in the field to visit the University, to present their views on these and related problems to the faculty and students, and to discuss the problem more informally with the Council.